

PIH2

ADDRESSING CHILDHOOD OBESITY IN MEXICO: SAVINGS ON HEALTH CARE EXPENDITURES FROM REGULATING FOOD AND BEVERAGE SALES IN BASIC EDUCATION SCHOOLS

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OBJECTIVES: Estimate potential direct savings for the Mexican Healthcare System generated by the operation of the "Technical Guidelines for distribution of food and beverages in establishments of basic education" targeting population of 6 to 14 years of age. **METHODS:** The authors use the micro-simulation model "Chronic Disease Prevention (CDP)" developed by the OECD-WHO for projecting health gains and costs of treatment in a period of 100 years. The model was adjusted to accommodate the range of ages stated in the Guidelines and uses information of incidence, prevalence, mortality, population at risk, annual unit costs and relative risk of selected chronic diseases (diabetes mellitus type 2, hypertension, cardio- and cerebro-vascular, hypercholesterolemia) attributable to obesity as well as the treatment of obesity as disease itself for the Mexican context. Sensitivity analyses were developed for most variables used in the model. **RESULTS:** Under the base case scenario present value of potential savings in total spending on medical care associated with the implementation of the Guidelines amount to USD\$1,052.2 million in 2008. Most savings are derived from averted cases of hypertension (32.7%), obesity-overweight (28.6%) and diabetes mellitus type II (17.8%). Results are robust to changes in all parameters analyzed. Amounts obtained are an underestimation of potential savings as neither expensive complications as renal failure nor other chronic diseases attributable to obesity as arthritis, colorectal or breast cancer were included. **CONCLUSIONS:** The Guidelines, developed by both Ministry of Public Education and Ministry of Health, represent a good example of cooperation among different sectors to solve a complex public health problem. Results shows the importance of implementing preventive interventions aimed at reducing the prevalence of chronic diseases related to poor eating habits, inadequate physical activity and obesity in Mexico. The implementation of the Guidelines involves significant direct savings that can be assigned to other health needs of the Mexican population.

PIH3

RESOURCE USE AND ASSOCIATED COSTS FOR THE TREATMENT OF HEAVY MENSTRUAL BLEEDING WITH LEVONORGESTREL RELEASING INTRAUTERINE SYSTEM (LNG-IUS) VERSUS HYSTERECTOMY: THE BRAZILIAN PUBLIC HEALTHCARE SYSTEM (SUS) PERSPECTIVE

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OBJECTIVES: To describe the resource utilization and the costs related to heavy menstrual bleeding (HMB) control with either an LNG-IUS or hysterectomy in the Brazilian Public Health System (SUS) on patients treated at the Department of Obstetrics and Gynecology, School of Medical Sciences, University of Campinas, Brazil. **METHODS:** We performed an observational retrospective descriptive study with costs evaluation and budgetary impact calculation from data extracted from medical files of patients diagnosed with HMB treated either with the LNG-IUS or hysterectomy. The measured outcomes were HMB control, LNG-IUS induced complications (expulsion, uterine perforation, pelvic inflammatory disease), LNG-IUS continuation rate and hospital costs after one year, as well as, the budgetary impact of the use of LNG-IUS in the treatment of HMB vs. hysterectomy. **RESULTS:** Two hundred sixty-seven medical files were initially retrieved for analysis. A total of 246 patients were included in this study, 122 received the LNG-IUS and 124 were treated with hysterectomy. The mean age was 39.7 years in the LNG-IUS group and 47.9 in the surgery group. Mean duration of HMB in the hysterectomy group was 3.2 years, twice that of the LNG-IUS group (1.5 years) ($p < 0.01$). Of the patients treated with LNG-IUS, 88.7% maintained the device for over one year and 83.1% had success in bleeding control with this method. Fourteen patients had to have the LNG-IUS removed prior to 12 months; however, only 1.6% because of failure in bleeding control. Costs for the LNG-IUS insertion in a one-year time horizon were R\$ 762.64 versus R\$ 870.03 for the hysterectomy procedure. **CONCLUSIONS:** When applied to the eligible population in SUS the budgetary impact of the LNG-IUS adoption was an economy of almost R\$ 3.6 million.

PIH4

ANÁLISIS DE COSTO-EFECTIVIDAD DEL USO DE LEVONORGESTREL-UIS FRENTE A OTROS TRATAMIENTOS EN MENORRAGIA IDIOPÁTICA

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OBJETIVOS: Establecer la Costo-efectividad de levonorgestrel-UIS (LNG-UIS) en el tratamiento de Menorragia Idiopática comparado con otras opciones de tratamiento (Anticonceptivo Oral Combinado, Acido Tranexámico, Acido Mefenámico y Naproxeno). **METODOLOGÍAS:** Se realizó un análisis de costo-efectividad desde la perspectiva del tercero pagador evaluando como desenlace el tiempo libre de sintomatologías ganado y el número de histerectomías evitadas. Las probabilidades de transición fueron obtenidas de estudios clínicos. Se tomaron los costos directos de atención a precios del 2010. No se incluyó la Ablación endometrial por no ser de uso en Colombia Se aplico un descuento del 3% anual para costos y desenlaces. Se realizó un análisis de sensibilidad tipo Montecarlo con 2000 iteraciones y un análisis univariado tipo tornado. **RESULTADOS:** Para una cohorte hipotética de 100 mujeres y un horizonte temporal de 5 años el costo del brazo con LNG-UIS fue de 100,993 USD frente a 116,726 USD, 127,513 USD, 103,497 y 125,330 USD (Anticonceptivo Oral Combinado, Acido Tranexámico, Acido Mefenámico y Naproxeno respectivamente).

Con LNG-UIS se lograron 5.413 meses sin sintomatología frente a 5.110, 4.975, 5.028 y 4.791 respectivamente. Con LNG-UIS se evitaron, 77 Histerectomías frente a 58, 74, 75 Y 65 respectivamente. LNG-UIS fue dominante frente a los demás comparadores para los desenlaces analizados. El análisis de sensibilidad tipo Montecarlo mantuvo dominancia del LNG-UIS en más del 99%. **CONCLUSIONES:** El uso de LNG-UIS como primera opción de tratamiento en mujeres con menorragia idiopática es la mejor alternativa por cuanto es menos costoso y más efectiva desde la perspectiva del tercero pagador en Colombia.

PIH5

REPLACING MMR BY MMRV IN MEXICO: ASSESSEMENT OF COST-EFFECTIVENESS BASED ON A DYNAMIC TRANSMISSION MODEL

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OBJECTIVES: To predict the cost-effectiveness of vaccination with measles, mumps, rubella, and varicella (MMRV) vs MMR in Mexico. **METHODS:** A dynamic mathematical model was used to reproduce the age-related incidence of varicella and zoster. The impact of introducing varicella vaccination was predicted at population-level including costs and quality of life. Empirical age-specific contact rates between individuals were used. Vaccine efficacy against varicella was assumed to be 95% after two doses (1y and 6y). We assessed the impact of vaccination in a base-case (coverage dose1: 90%; dose2: 80%) and in an optimal scenario (higher coverage dose1:95%; dose2:90% and catch-up programme); and the cost-effectiveness of replacing MMR with MMRV using 5% discount rates for benefits and costs. **RESULTS:** In the long-term, MMRV vaccination is predicted to result in a ~90% decrease in varicella incidence (with short-term epidemics due to rebound effect) and a ~90% decrease in zoster cases (with a temporary increase due to the assumption on exogenous boosting). At 1, 5, 30, and 80 years, MMRV versus MMR is predicted to result in: - more QALYs saved (31, 209, 925, and 1306); - more complications avoided (2, 6, 132, 1864); and - less deaths (0.15, 1.09, 8.39, 28.95). Despite increased vaccine costs vs MMR, MMRV was cost saving at all time points in terms of GP/outpatient, hospital, indirect, and total (\$7.9, \$56.5, \$226.9, and \$331.2 million, respectively) costs. Cost-effectiveness planes for direct and total costs indicate that MMRV would provide more QALYs than MMR, and is cost saving. These results are for the base-case scenario. For optimal scenario, results were similar or even better. **CONCLUSIONS:** MMRV vaccination should result in significant reduction in varicella and zoster cases in the long-term. We predict the replacement of MMR by MMRV to be dominant under both scenarios.

Infection – Clinical Outcomes Studies

PIN1

THE EPIDEMIOLOGIC BURDEN OF HEPATITIS C VIRUS INFECTION IN LATIN AMERICA

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OBJECTIVES: Chronic infection with hepatitis C virus (HCV) is a major and growing public health concern in many, if not all, Latin American countries. With more efficacious therapies becoming available, decision-makers require accurate estimates of disease prevalence to assess the cost-benefit ratio of new treatments for HCV infection. These estimates are challenging to derive because HCV infection often remains asymptomatic – and therefore undetected – until the liver has been seriously damaged. The objective of the study was to synthesize estimates of the epidemiologic burden of HCV from Latin America. **METHODS:** A systematic review was conducted in Medline and EMBASE by two reviewers to identify population-based estimates of HCV prevalence from Argentina, Brazil, Colombia, Mexico, Peru, and Venezuela since 2000. Studies were only included if they were considered methodologically adequate, and randomly sampled representative members of the general population. Counts and rates of positive HCV tests from national blood bank networks were also synthesized. **RESULTS:** Only one methodologically adequate Latin American population-based survey, from Mexico, was identified; the estimated HCV prevalence was 1.4% (1.1%-1.6%). Estimates of HCV prevalence among blood donors were: 0.66% (Argentina, 2008), 0.53% (Brazil, 2007), 0.57% (Colombia, 2006), 0.66% (Mexico, 2007), 0.81% (Peru, 2007), and 0.37% (Venezuela, 2005). **CONCLUSIONS:** Based on the review, Mexico is the only Latin American country with robust estimates of HCV prevalence; the potential societal burden is enormous as about 1.5% of the population is infected. Rates from blood donors underestimate true HCV prevalence; and the differences between population-based and blood donor estimates for Mexico help frame the extent of that underestimate. These population-based prevalence estimates, and the prevalence estimates from blood donors, may be useful for inclusion in disease models. Discrepancies between estimates from the different sources underscore the need for methodologically-rigorous epidemiologic studies to maximally inform decision-makers in Latin America.

Infection – Cost Studies

PIN2

FACING CRITICAL HEALTH EVENTS: ECONOMIC IMPACT OF AH1N1 FLU EPIDEMIC IN THE MEXICAN HEALTH SECTOR, 2009-2010